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SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

EDITORIAL COMMITTEE : S. NEWCOMB, Mathematics ; R. S. WOODWARD, Mechanics ; E. C. PICKERING, Astronomy ; T. C. MENDENHALL, Physics ; R. H. THURSTON, Engineering ; IEA REMSEN, Chemistry ; CHARLES D. WALCOTT, Geology ; W. M. DAVIS, Physiography ; HENRY F. OSBOURN, Paleontology ; W. K. BROOKS, C. HAET MERRIAM, Zoology ; S. H. SCUDER, Entomology ; C. E. BESSEY, N. L. BRITTON, Botany ; C. S. MINOT, Embryology, Histology ; H. P. BOWDITCH, Physiology ; WILLIAM H. WELCH, Pathology ; J. McKEEN CATTELL, Psychology.

FRIDAY, MARCH 6, 1903.

INAUGURAL ADDRESS OF THE PRESIDENT OF THE STEVENS INSTITUTE OF TECHNOLOGY.*

IN subscribing to this oath of office I am profoundly sensible of the responsibilities I assume.

For the two months preceding my acceptance of the presidency of Stevens Institute I was constantly studying the many questions involved therein, and especially that of my fitness for the office. I feared that it would be presumptuous for a man not an educator by profession to undertake to carry on Dr. Morton's great work; at the best it seemed to me an experiment of doubtful wisdom, for failure meant probable injury to the loved *alma mater* as the return for serious sacrifices to be made by myself and those dear to me.

In considering the objection that I had not been trained as an educator, I was not unmindful, on the other hand, of the fact that in my professional career I had been called to direct the later studies of graduates of engineering schools, including a large number of Stevens men, and so had been forced to study and appraise from the viewpoint of practice, the efficiency of the training supplied by a number of our technical schools. In this work I had found myself deeply interested; and in reviewing my experiences in this and some other di-

* Delivered in the Carnegie Laboratory of Engineering, February 5, 1903.

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

This voluminous work is from the brain and pen, not of a teacher, but of the chief chemist in the Great Northern Railway Shops, St. Paul, and naturally reflects the practical experience of its industrious author. To attempt to review in a conscientious manner a closely printed volume of more than six hundred pages, estimated to contain over four hundred thousand words, is impossible in the time and space that can be given. The author states that the 'volume is intended for the aid of students who have a fair acquaintance with the elements of general chemistry and can devote a limited time to quantitative analysis concurrent with or following the usual qualitative course.' At the same time it will form 'an introduction to the monographs on special departments of technical analysis for those purposing to engage in some particular branch as a future occupation.'

After outlining the general principles of the subject and describing the operations usually employed, the book presents a graded series of exercises for practice; these comprise twenty-four examples of great diversity, alcohol, ferrous sulfate, coffee, cast iron, ether, vinegar, hydrastis, metol, steel, barium chloride, lard, air and wollastonite, with others, in the sequence here given.

Then Part III. begins, at page 259, and deals with the analytical behavior of articles of commercial importance; these embrace, among others, iron ores, coal, natural water, fertilizers, alkaloids, tannins, carbohydrates, soap, milk and butter, and urine, besides methods based on colorimetry, electrolysis, and organic analysis both proximate and ultimate.

Part IV., beginning at page 521, gives notes and observations relating to the art in general. The volume closes with an appendix on 'Technical and Industrial Analysis,' and an index.

This work is in some degree encyclopedic; the author shows familiarity with many branches of the subject, and the numerous citations show a wide knowledge of the literature, especially American. He has rescued from the pages of periodicals many good

methods little used in laboratories, giving their authors due credit. He shows throughout ability, thoughtfulness and universality. The arrangement of some of the matter is open to criticism. The book adopts the modern spelling of 'sulfur'; it is freely illustrated; its rather small type was probably necessitated by its length; there are about seven hundred words on each page. The paper, type and binding are hardly up to the high standard adopted for other works of like character.

This comprehensive treatise of Mr. Julian contains many processes, as well as specific details of ordinary methods, not easily found elsewhere, and ought to be serviceable in the libraries of technical schools and universities as a work of reference.

H. C. B.

SCIENTIFIC JOURNALS AND ARTICLES.

BIOLOGICAL BULLETIN.

VOLUME IV., No. 1, December, 1902:

1. G. T. Hargitt, 'Notes on the Regeneration of *Gonionema*.'

A résumé of experiments conducted at the Marine Biological Laboratory, Woods Holl, during the summer of 1901, and extending the previous work of C. W. Hargitt and Morgan.

2. C. W. Hargitt, 'Notes on a few Medusæ new to Woods Holl.'

This paper is part of the synopsis of the medusoid fauna of the region which it is hoped may be ready within the year.

3. Walter S. Sutton, 'On the Morphology of the Chromosome Group in *Brachystola magna*.'

The conclusion is that the association of paternal and maternal chromosomes in pairs and their subsequent separation during the reducing division may constitute the physical basis of the Mendelian law of heredity. This subject will be continued in a later number of the *Bulletin*.

4. Ida H. Hyde, 'The Nervous System in *Gonio-nema Murbachii*'

A study of the distribution of the nervous system with reference to its physiology.

VOLUME IV., No. 2, January, 1903:

1. Harold Heath, 'The Habits of California Termites.'

2. J. H. Elliot, 'A Preliminary Note on the Occurrence of a *Filaria* in the Crow.'

Records the discovery of embryo filariae in the blood and of *Halderidium* in the red corpuscles.

3. Mary J. Ross, 'The Origin and Development of the Gastric Glands of *Desmognathus, Ambystoma* and Pig.'

This work was submitted to the Faculty of Cornell University for the degree of Doctor of Philosophy.

4. H. F. Thatcher, 'A Preliminary Note on the Absorption of the Hydranths of Hydrozoan Polyps.'

The conclusion is reached that the process is not liquefaction of protoplasm, or of withdrawal of the polyp as a whole. The absorption takes place by the degenerating cells of the endoderm and ectoderm being turned into the digestive tract of the colony.

VOLUME IV., No. 3, February, 1903:

1. Axel Leonard Melander, 'Notes on the Structure and Development of *Embia texana*'

2. W. R. Coe and B. W. Kunkel, 'A New Species of Nemertean (*Cerebratulus melanops*) from the Gulf of St. Lawrence.'

3. R. P. Cowles, 'Notes on the Rearing of the Larvae of *Polygordius appendiculatus* and on the Occurrence of the Adult on the Atlantic Coast of America.'

The rearing of the larvae of an American *Polygordius* by the diatom method, and its identification with the European species *appendiculatus*.

4. Arthur W. Greeley, 'On the Effect of Variation in the Temperature upon the Process of Artificial Parthenogenesis.'

The length of exposure to the solution necessary to produce artificial parthenogenesis of the unfertilized eggs of *Asterias* and *Arbacia* varies inversely with the temperature. An increase of temperature to 27° C. liquefies the protoplasm of the *Asterias* eggs and produces a fragmentation of the nucleus.

5. Wm. Morton Wheeler, '*Erebomyrma*; a new genus of Hypogaic Ants from Texas.'

Containing an account of the first ant-genus to be established by an American.

Science Abstracts will in future be published in two sections, *Section A*: physics embracing light, including photography; heat; sound; electricity and magnetism; chemical physical and electro-chemistry; general physics; meteorology and terrestrial physics; physical astronomy. *Section B*: embracing steam plant, gas and oil engines; automobiles; oil-engine-driven ships and launches; balloons and airships; general electrical engineering, including industrial electro-chemistry; electric generators, motors and transformers;

electrical distribution, traction and lighting; telegraphy and telephony. The American Physical Society is now joined with the Institution of Electrical Engineers and the Physical Society of London in the direction of the publication and has elected Professor E. H. Hall of Harvard University as its representative on the publishing committee. In consequence of this arrangement, *Section A* will in future be received by all members of the American Physical Society. The American Institute of Electrical Engineers is also co-operating with the committee and taking special means to bring the publication to the notice of all its members, who will in future be able to obtain it at a reduced subscription rate through the secretary of the American Institute.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES. SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY.

At the meeting of the section on January 5, the following papers were presented: Mr. C. C. Trowbridge on 'Some Facts Regarding Persistent Meteor Trails—the significance of size, color and drift'; Professor Harold Jacoby on a 'Comparison of Astronomic Photographic Measures With the Reseau and Without it.'

At the meeting of February 2, Mr. Herschel C. Parker read a paper on 'Experiments Concerning Very Brief Electrical Contacts,' exhibiting contact keys by means of which he could get a fairly accurate range of adjustment from 0.1 second to 0.00001 second.

Professor Marston T. Bogert gave a very interesting talk on 'Some Products Derived from Coal,' paying special reference to the products from coal-tar. From bituminous coal, by distillation, are derived: (1) Coal gas, (2) ammonia water, (3) tar and (4) coke.

The uses of coal-gas and coke are so well known as to need no mentioning. In the United States, the total production of ammonium compounds for the year 1900 amounted to 2,700 tons, valued at about \$2,000,000.